This document provides pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.22 MGD wastewater treatment plant. This permit action consists of updating the proposed effluent limits to reflect the current Virginia Water Quality Standards (effective 6 January 2011) and updating permit language as appropriate. The effluent limitations and special conditions contained within this permit will maintain the Water Quality Standards of 9VAC25-260 et seq.

1.	Facility Name and Mailing Address:	Lake Land 'Or Wastewater Treatment Plant 2414 Granite Ridge Road Rockville, VA 24146	SIC Code:	4952 WWTP
	Facility Location:	200 Kent Drive Ruther Glen, VA 22546	County:	Caroline
	Facility Contact Name:	Luther Ghorley / Area Manager	Telephone Number:	804-240-9650
	Facility Email Address:	LSGhorley@aquaamerica.com		
2.	Permit No.:	VA0060887	Expiration Date:	13 September 2015
	Other VPDES Permits:	VAN030110		
	Other Permits:	Public Water Supply – PWSID 6033450		
	E2/E3/E4 Status:	Not Applicable		
3.	Owner Name:	Aqua Virginia, Incorporated		
	Owner Contact / Title:	Brad Campbell / Compliance Coordinator	Telephone Number:	804-971-2502
	Owner Email Address:	BACampbell@aquaamerica.com		
4.	Application Complete Date:	16 March 2015		
	Permit Drafted By:	Douglas Frasier	Date Drafted:	13 July 2015
	Draft Permit Reviewed By:	Anna Westernik	Date Reviewed:	15 July 2015
	Draft Permit Reviewed By:	Alison Thompson	Date Reviewed:	4 August 2015
	Public Comment Period:	Start Date: 4 September 2015	End Date:	5 October 2015
5.	Receiving Waters Information:	See **Attachment 1** for the Flow Frequency Determination.		
	Receiving Stream Name:	South River, UT	Stream Code:	8-XDK
	Drainage Area at Outfall:	13.1 square miles	River Mile:	0.12
	Stream Basin:	York River	Subbasin:	None
	Section:	3	Stream Class:	III
	Special Standards:	None	Waterbody ID:	VAN-F19R
	7Q10 Low Flow:	0.0 MGD	7Q10 High Flow:	0.0 MGD
	1Q10 Low Flow:	0.0 MGD	1Q10 High Flow:	0.0 MGD
	30Q10 Low Flow:	0.0 MGD	30Q10 High Flow:	0.0 MGD
	Harmonic Mean Flow:	0.0 MGD	30Q5 Flow:	0.0 MGD

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

X	State Water Control Law	X	EPA Guidelines
X	Clean Water Act	X	Water Quality Standards
X	VPDES Permit Regulation		Other
X	EPA NPDES Regulation		

7. **Licensed Operator Requirements:** Class II

8. **Reliability Class:** Class I

9. **Facility / Permit Characterization:**

X	Private	X	Effluent Limited		Possible Interstate Effect
	Federal	X	Water Quality Limited		Compliance Schedule
	State		Whole Effluent Toxicity Program		Interim Limits in Permit
	POTW		Pretreatment Program		Interim Limits in Other Document
X	eDMR Participant		Total Maximum Daily Load (TMDL)		

10. **Wastewater Sources and Treatment Description:**

This facility serves the Lake Land 'Or residential community with 964 residences for a total population of 2030. The facility consists of a static fine screen, two trains consisting of anoxic and oxic zones, secondary clarification, disk filter and ultraviolet (UV) disinfection. The static fine screen removes non-organic material from the influent wastewater where it is collected in a dumpster for disposal in a landfill. The anoxic and oxic zones are for denitrification and nitrification, respectively. The system has the capability of adding aluminum sulfate at the end of the oxic basin for phosphorous removal if needed. Effluent from the clarifier is routed to the disk filter where it passes through the submerged cloth media and directed to the UV disinfection. Should there be a UV system failure; the facility has a backup chlorination/dechlorination system.

See **Attachment 2** for a facility schematic/diagram.

TABLE 1
OUTFALL DESCRIPTION

Number	Discharge Sources	Treatment	Design Flow	Latitude / Longitude
001	Domestic Wastewater	See Section 10	0.22 MGD	38° 01′ 50″ / 77° 32′ 59″
See **Attachment 3** for the Ladysmith topographic map.				

11. **Sludge Treatment and Disposal Methods:**

Wasted sludge is aerobically digested prior to being dewatered via a belt filter press. The facility does not digest to Class B Standards. The sludge is transported to the King George Landfill (permit number SWP586) located at 10376 Bullock Drive, King George, VA for final disposal.

12. **Permitted Discharges Located Within Waterbody VAN-F19R:**

TABLE 2
PERMITTED DISCHARGES

Permit Number	Facility Name	Type	Receiving Stream
VA0061409	Woodford Estates MHC LLC	Municipal Discharge Individual Permit	Motto River, UT
VAG110240	American Stone Virginia LLC	Concrete Products General Permit	Stevens Run
VAG840146	Luck Stone Corp. – Caroline	Non Metallic Mineral Mining General Permit	Mattaponi River, UT

13. Material Storage:

TABLE 3 MATERIAL STORAGE		
Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Magnesium Hydroxide	19,309 lbs. (maximum)	Grate with drain that is routed to back to the headworks of the plant.
Dry Lime	(2-5) 50 lb. bags	Stored in building.
Lime Slurry (50/50 magnesium/lime blend)	4,600 gallons	Stored behind building – drain flows to the digester.
Sodium Hypochlorite	200 gallons	Stored in building beside UV channel in tote.
Sodium bisulfate	25 gallons	Stored in building beside UV Channel.
DelPac	(16) 55 gallon drums maximum	Stored in building.
Dry polymer	(2) 50 lb. bags	
Liquid polymer	200 gallons maximum	
Process bugs 4200	(6) 25 pound buckets	
Grease bugs 4100	(2) 25 pound buckets	
Defoamer	(3-4) 5 gallon buckets	

14. Site Inspection:

A technical inspection was performed by DEQ-NRO Compliance staff on 23 February 2011. Please refer to **Attachment 4** for the inspection summary. The entire report is on file in DEQ's Enterprise Content Management (ECM).

15. Receiving Stream Water Quality and Water Quality Standards:

a. Ambient Water Quality Data

This facility discharges to an unnamed tributary to South River that is designated by the stream code XDK and has not been monitored or assessed. South River is located approximately 0.12 mile downstream from Outfall 001. DEQ ambient monitoring station 8-STH007.67 is located on South River at Route 743, approximately 5.7 miles downstream from Outfall 001.

The following is the water quality summary for this segment of South River, as taken from the 2012 Integrated Report:

Class III, Section 3

DEQ monitoring stations located in this segment of South River: ambient water quality monitoring station 8-STH007.67, at Route 743 (Clifton Road)

The aquatic life, recreation, and wildlife uses are considered fully supporting.

The fish consumption use was not assessed.

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b. 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

TABLE 4
DOWNSTREAM 303(d) IMPAIRMENTS AND TMDLs

Waterbody Name	Impaired Use	Cause	TMDL Completion/Schedule	WLA	Basis for WLA
Impairment Information in the 2012 Integrated Report					
South River	Recreation*	*E. coli*	2016	---	---
Mattaponi River	Fish Consumption	Mercury	2018	---	---
		PCBs	2022	---	---

* This downstream recreation impairment is listed in the 2012 Integrated Report. More recent bacteria monitoring conducted in South River shows acceptable bacteria values, making this stream segment eligible for delisting in the 2014 Integrated Report, which is currently in draft format and is under review by EPA. It is expected that this segment of South River will be delisted for the recreation use in the final 2014 Integrated Report.

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal. The draft 2012 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on 29 December 2010. It was based, in part, on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

Implementation of the Chesapeake Bay TDML is currently accomplished in accordance with the Commonwealth of Virginia's Phase I Watershed Implementation Plan (WIP); approved by EPA on 29 December 2010. The approved WIP recognizes that the TMDL nutrient WLAs for Significant Chesapeake Bay wastewater dischargers are set in two regulations: 1) the *Water Quality Management Planning Regulation* (9VAC25-720); and 2) the *General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed of Virginia* (9VAC25-820). The WIP states that since TSS discharges from wastewater facilities represent an insignificant portion of the Bay's total sediment load, they may be considered aggregated and wastewater discharges with technology-based TSS limits are considered consistent with the TMDL.

40 CFR 122.44(d)(1)(vii)(B) requires permits to be written with effluent limits necessary to meet water quality standards and to be consistent with the assumptions and requirements of applicable WLAs. DEQ has provided coverage under the VPDES Nutrient General Permit (GP) for this facility under permit VAN030110. The requirements of the Nutrient GP currently in effect for this facility are consistent with the Chesapeake Bay TMDL. This individual permit includes TSS limits that are also consistent with the Chesapeake Bay TMDL and WIP. In addition, the individual permit addresses limitations for the protection of instream dissolved oxygen concentrations as detailed in Section 19 of this Fact Sheet. The proposed effluent limits within this individual permit are consistent with the Chesapeake Bay TMDL and will not cause an impairment or observed violation of the standards for D.O., chlorophyll a or SAV as required by 9VAC25-260-185.

The entire planning statement is located in **Attachment 5**.

c. Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream, an unnamed tributary to South River, is located within Section 3 of the York River Basin and classified as Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32° C and maintain a pH of 6.0 – 9.0 standard units (S.U.).

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The Freshwater Water Quality / Wasteload Allocation Analysis, located in **Attachment 6**, detail the water quality criteria applicable to the receiving stream. Some Water Quality Criteria are dependent on the pH, temperature and total hardness of the receiving stream and/or final effluent. These values were utilized in determining the criterion for the following pollutants:

pH and Temperature for Ammonia Criteria

The fresh water, aquatic life Water Quality Criteria for ammonia is dependent on the instream pH and temperature. Since the effluent may have an impact on the instream values, the pH and temperature values of the effluent must also be considered when determining the ammonia criteria for the receiving stream. The 90th percentile pH and temperature values are utilized because they best represent the critical conditions of the receiving stream.

The critical 30Q10 and 1Q10 flows of the receiving stream have been determined to be 0.0 MGD. In cases such as this, effluent pH and temperature data may be utilized to establish the ammonia water quality criteria. See **Attachment 7** for the derivation of the 90th percentile values of the effluent pH data from October 2010 to May 2015. A default temperature value of 25° C and an assumed temperature value of 15° C for summer and winter, respectively, were utilized since effluent data was not readily available.

The ammonia water quality criteria calculations are shown in **Attachment 6.**

Hardness Dependent Metals Criteria

The Water Quality Criteria for some metals are dependent on the receiving stream and/or effluent total hardness values (expressed as mg/L calcium carbonate). The 7Q10 of the receiving stream is zero; thus, ambient data is not available. In addition, there is no hardness data for this facility. Therefore, staff guidance suggests utilizing a default hardness value of 50 mg/L $CaCO_3$ for streams east of the Blue Ridge.

The hardness dependent metals criteria in **Attachment 6** are based on this default value.

Bacteria Criteria

The Virginia Water Quality Standards at 9VAC25-260-170.A state that the following criteria shall apply to protect primary recreational uses in surface waters:

E. coli bacteria per 100 mL of water shall not exceed the following:

	Geometric Mean[1]
Freshwater *E. coli* (N/100 mL)	126

[1]For a minimum of four weekly samples taken during any calendar month

d. Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, unnamed tributary to South River, is located within Section 3 of the York River Basin. This section has not been designated with a special standard.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

It is staff's best professional judgement that the receiving stream be classified as Tier 1 based on the following: (1) the stream critical flows have been determined to be zero; (2) at times the stream flow may be comprised of only effluent; and (3) the noted downstream impairments.

The proposed permit limits have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLAs) are calculated. In this case since the critical 7Q10, 1Q10 and 30Q10 flows have been determined to be zero, the WLAs are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. In the case of ammonia evaluations, limits are needed if the 97th percentile of the thirty-day average effluent concentration value is greater than the chronic WLA. Effluent limitations are based on the most limiting WLA, the required sampling frequency and statistical characteristics of the effluent data.

a. Effluent Screening

Effluent data obtained from Discharge Monitoring Reports (DMRs) for the months of October 2010 through May 2015 has been reviewed and determined to be suitable for evaluation.

Please see **Attachment 7** for a summary of effluent data.

The following pollutants require a wasteload allocation analysis: ammonia since this facility is treating domestic sewage and chlorine which may be utilized to disinfect the final effluent.

b. Mixing Zones and Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f) (Q_s)] - [(C_s) (f) (Q_s)]}{Q_e}$$

Where:
- WLA = Wasteload allocation
- C_o = In-stream water quality criteria
- Q_e = Design flow
- Q_s = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; 30Q10 for ammonia criteria; and 30Q5 for non-carcinogen human health criteria)
- f = Decimal fraction of critical flow
- C_s = Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 has been determined to have critical 7Q10, 1Q10 and 30Q10 flows of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the C_o.

c. Effluent Limitations, Outfall 001 – Toxic Pollutants

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an instream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N/TKN

The toxicity of ammonia is dependent on the pH of the effluent and/or receiving stream. Ammonia can exist as both "ionized ammonia" (NH_4) and "un-ionized ammonia" (NH_3). Research has shown that the un-ionized ammonia is the fraction that is toxic to aquatic life while the ionized ammonia has been found to have little or no toxic effect. Furthermore, it has been demonstrated that the un-ionized fraction increases correspondingly with rising pH values; thus, increasing potential toxicity and the basis for the above calculated ammonia limits.

The Environmental Protection Agency (EPA) finalized new, more stringent ammonia criteria in August 2013; possibly resulting in significant reductions in ammonia effluent limitations. It is staff's best professional judgement that incorporation of these criteria into the Virginia Water Quality Standards is forthcoming. This and many other facilities may be required to comply with these new criteria during their next respective permit terms. It is staff's best professional judgement that the previous limitations of 1.3 mg/L and 1.8 mg/L (monthly and weekly averages, respectively) for the time period of November through February be carried forward with this reissuance (**Attachment 8**). The ammonia criteria will be revisited during the next reissuance as the new criteria will have been incorporated into the Water Quality Standards by that time.

The previous permit imposed a limit for total Kjeldahl nitrogen (TKN) for the months of March through October. It is generally accepted that TKN consists of approximately 60% ammonia in raw wastewater. As the waste stream is treated, the ammonia component of TKN is converted to nitrate (NO_3) and nitrite (NO_2). It is estimated that a facility achieving a TKN limit of 3.0 mg/L essentially removes ammonia from the waste stream, resulting in a 'self-sustaining' quality effluent that protects against ammonia toxicity.

It is staff's best professional judgement that a TKN monthly average limit of 3.0 mg/L is still protective given the aforementioned and will be carried forward in this reissuance. The weekly average limit will be 4.5 mg/L based on a multiplier of 1.5 times the monthly average.

2) Total Residual Chlorine (TRC)

Chlorine disinfection units are in place in case the ultraviolet (UV) system is offline and would potentially be present in the discharge. Staff calculated WLAs for TRC utilizing current critical flows. In accordance with current DEQ guidance, staff employed a default data point of 0.2 mg/L and the calculated WLAs to derive limits. A monthly average of 0.007 mg/L and a weekly average limit of 0.008 mg/L are proposed for this discharge (see **Attachment 9**). These limitations are more stringent than the current 0.008 mg/L and 0.010 mg/L monthly and weekly averages, respectively, based on the fact that during the previous reissuance, staff incorrectly input the number of samples that would be taken per month based on this facility's design flow while completing the reasonable potential analysis.

3) Metals/Organics

It is staff's best professional judgement that given the wastewater sources; limitations are not warranted at this time.

d. Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), biochemical oxygen demand-5 day (BOD_5) for March – October, carbonaceous biochemical oxygen demand-5 day ($cBOD_5$) for November - February, total Kjeldahl nitrogen (TKN) for March – October, ammonia as N for November – February, total suspended solids (TSS), total residual chlorine and pH limitations are proposed.

It is staff's practice to equate the total suspended solids limits with the BOD_5/$cBOD_5$ limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the water quality criteria.

E. coli limitations are in accordance with the Water Quality Standards 9VAC25-260-170.

e. Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

VPDES Regulation 9VAC25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries. Only concentration limits are now found in the individual VPDES permit when the facility installs nutrient removal technology. The basis for the concentration limits is 9VAC25-40 – *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed* which requires new or expanding discharges with design flows of ≥ 0.04 MGD to treat for TN and TP to either BNR (Biological Nutrient Removal) levels (TN = 8 mg/L; TP = 1.0 mg/L) or SOA (State of the Art) levels (TN = 3.0 mg/L and TP = 0.3 mg/L).

This facility has also obtained coverage under 9VAC25-820 – *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia.* This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. Nutrient loadings for those facilities registered under the general permit as well as compliance schedules and other permit requirements, shall be authorized, monitored, limited, and otherwise regulated under the general permit and not this individual permit. This facility has coverage under this General Permit; the permit number is VAN030110. Total Nitrogen Annual Loads and Total Phosphorus Annual Loads from this facility are found in 9VAC25-720 – *Water Quality Management Plan Regulation* which sets forth TN and TP maximum wasteload allocations for facilities designated as significant discharges, i.e. those with design flows of ≥ 0.5 MGD above the fall line and > 0.1 MGD below the fall line.

Monitoring for nitrates + nitrites, total Kjeldahl nitrogen, total nitrogen, and total phosphorus are included in this permit. The monitoring is needed to protect the Chesapeake Bay Water Quality Standards. Monitoring frequencies are set at the frequencies as set forth in 9VAC25-820. Annual average effluent limitations, as well as monthly and year to date calculations, for total nitrogen and total phosphorus are included in this individual permit. The annual averages are based on the offset plan submitted as part of the Registration Statement for 9VAC25-820, 9VAC25-40 and GM07-2008.

f. Effluent Limitations and Monitoring Summary

The effluent limitations are presented in Section 19. Limits and/or monitoring requirements were established for biochemical oxygen demand-5 day (BOD_5), carbonaceous-biochemical oxygen demand-5 day ($cBOD_5$), total suspended solids (TSS), ammonia as N, total Kjeldahl nitrogen (TKN), nitrate+nitrite, pH, dissolved oxygen (D.O.), total residual chlorine, *E. coli*, total nitrogen and total phosphorus.

The limit for total suspended solids is based on Best Professional Judgment and 'self-sustaining' effluent limits.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and then a conversion factor of 3.785.

The mass loading (lb/d) for TKN/total phosphorus monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and then a conversion factor of 8.345.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for BOD/cBOD and TSS (or 65% for equivalent to secondary). The limits in this permit are water quality-based effluent limits and result in greater than 85% removal.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19. Effluent Limitations/Monitoring Requirements:

Design flow is 0.22 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
$cBOD_5$ (March – October)	3,5	10 mg/L 8.3 kg/day	15 mg/L 12 kg/day	NA	NA	3D/W	8H-C
BOD_5 (November – February)	3	10 mg/L 8.3 kg/day	15 mg/L 12 kg/day	NA	NA	3D/W	8H-C
Total Suspended Solids (TSS)	2	10 mg/L 8.3 kg/day	15 mg/L 12 kg/day	NA	NA	3D/W	8H-C
Dissolved Oxygen (DO)	3,5	NA	NA	5.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN) (March – October)	3,5	3.0 mg/L 5.5 lb/day	4.5 mg/L 8.3 lb/day	NA	NA	3D/W	8H-C
Total Kjeldahl Nitrogen (TKN) (November - February)	2	NL mg/L NL lb/day	NL mg/L NL lb/day	NA	NA	3D/W	8H-C
Ammonia, as N (November – February)	2,3	1.3 mg/L	1.8 mg/L	NA	NA	3D/W	8H-C
E. coli (Geometric Mean) [a.]	3	126 n/100 mL	NA	NA	NA	3D/W	Grab
Total Residual Chlorine [b.] (after contact tank)	2,4	NA	NA	1.0 mg/L	NA	3/D at 4-hr Intervals	Grab
Total Residual Chlorine [b.] (after dechlorination)	3	0.007 mg/L	0.008 mg/L	NA	NA	3/D at 4-hr Intervals	Grab
Nitrate+Nitrite, as N	3,6,7	NL mg/L	NA	NA	NA	1/2W	8H-C
Total Nitrogen [c.]	3,6,7	NL mg/L	NA	NA	NA	1/2W	Calculated
Total Nitrogen – Year to Date [d.]	3,6,7	NL mg/L	NA	NA	NA	1/M	Calculated
Total Nitrogen – Calendar Year [d.]	3,6,7	8.0 mg/L	NA	NA	NA	1/YR	Calculated
Total Phosphorus	3,6,7	NL mg/L	NA	NA	NA	1/2W	8H-C
Total Phosphorus – Year to Date [d.]	3,6,7	NL mg/L	NA	NA	NA	1/M	Calculated
Total Phosphorus – Calendar Year [d.]	3,6,7	1.0 mg/L	NA	NA	NA	1/YR	Calculated

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgement
3. Water Quality Standards
4. DEQ Disinfection Guidance
5. Current VPDES Permit Manual for "self-sustaining" effluents.
6. 9VAC25-40 (Nutrient Regulation)
7. Chesapeake Bay TMDL/WIP

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
3/D = Three times every day.
3D/W = Three days every week.
1/2W = Once every two weeks.
1/M = Once every month.
1/YR = Once every calendar year.

8H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of eight (8) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum eight (8) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15 minutes.

a. Samples shall be collected between 10:00 a.m. and 4:00 p.m.

b. Total residual chlorine is only required when utilized for disinfection.

c. Total Nitrogen = Sum of TKN plus Nitrate+Nitrite.

d. See Section 20.a. for more information on the Nutrient Calculations.

20. Other Permit Requirements:

Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels and compliance reporting instructions

These additional chlorine requirements are necessary per the Sewage Collection and Treatment Regulations at 9VAC25-790 and by the Water Quality Standards at 9VAC25-260-170, when the facility utilizes chlorine for disinfection. Minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more that 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be < 1.0 mg/L with any TRC < 0.6 mg/L considered a system failure.

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an instream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

The calculations for the nitrogen and phosphorus parameters shall be in accordance with the calculations set forth in 9VAC25-820 – *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia.* §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9VAC25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, these reporting calculations are intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

21. Other Special Conditions:

a. 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4 requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a PVOTW.

b. Indirect Dischargers. Required by VPDES Permit Regulation, 9VAC25-31-200.B.1 and B.2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

c. O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. The permittee shall maintain a current Operations and Maintenance (O&M) Manual. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review upon request. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

d. CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct (CTC) prior to commencing construction and to obtain a Certificate to Operate (CTO) prior to commencing operation of the treatment works.

e. Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200.C., and by the Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations (18VAC160-20-10 et seq.) requires licensure of operators. This facility requires a Class II operator.

f. Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a reliability Class of I.

(Remainder of page intentionally left blank)

g. Water Quality Criteria Reopener. The VPDES Permit Regulation at 9VAC25-31-220.D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.

h. Sludge Reopener. The VPDES Permit Regulation at 9VAC25-31-220.C. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.

i. Sludge Use and Disposal. The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2, and 420 through 720 and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

j. Nutrient Offsets. The Virginia General Assembly, in their 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:15 sets forth the requirements for new and expanded dischargers, which are captured by the requirements of the law, including the requirement that non-point load reductions acquired for the purpose of offsetting nutrient discharges be enforced through the individual VPDES permit.

k. E3/E4. 9VAC25-40-70.B. authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.

l. Nutrient Reopener. 9VAC25-40-70.A. authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9VAC25-31-390.A. authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

m. Collection System. 9VAC25-31-10 defines treatment works as any devices and systems used for the storage, treatment, recycling or reclamation of sewage or liquid industrial waste, or other waste or necessary to recycle or reuse water, including intercepting sewers, outfall sewers, sewage collection systems, individual systems, pumping, power and other equipment and their appurtenances. 9VAC25-31-190.E states that the permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit. The permittee shall continue to administer and fund a program that ensures regular maintenance and necessary rehabilitation of the sanitary sewer collection system; adequately conveying sanitary waste while concurrently addressing inflow and infiltration (I&I). Documentation pertaining to any and all investigative and rehabilitation activities of the sanitary sewer collection system shall be made available to DEQ staff upon request.

n. Total Maximum Daily Load (TMDL) Reopener. Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan or other wasteload allocation prepared under section 303 of the Act.

22. Permit Section Part II.

Required by VPDES Regulation 9VAC25-31-190, Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

(Remainder of page intentionally left blank)

23. Changes to the Permit from the Previously Issued Permit:

a. Special Conditions:

- The Comparison Sampling condition was removed during this reissuance since the permittee completed the testing during the previous permit.
- The Pump Station Reliability special condition was removed with this reissuance as the permittee has fulfilled the requirements set forth during the previous permit term.
- The Inflow and Infiltration special condition was replaced with the Collection System requirement which is to ensure continuation of reducing inflow and infiltration through regular inspections and rehabilitation.

b. Monitoring and Effluent Limitations:

- The total residual chlorine (after dechlorination) limitations are more stringent with this reissuance based on a technical error during the previous reissuance.
- Reporting of TKN during the months of November – February were included with this reissuance. Since this parameter is required to calculate total nitrogen, it's staff's best professional judgement that reporting is warranted.

24. Variances/Alternate Limits or Conditions: Not Applicable

25. Public Notice Information:

First Public Notice Date: 3 September 2015 Second Public Notice Date: 10 September 2015

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected and copied by contacting the: DEQ Northern Regional Office; 13901 Crown Court; Woodbridge, VA 22193; Telephone No. 703-583-3873; Douglas.Frasier@deq.virginia.gov. See **Attachment 10** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

26. Additional Comments:

Previous Board Action(s):	Aqua Virginia entered into a Consent Order effective 2 September 2014 when monthly average influent flows exceeded 95% of plant design capacity due to inflow and infiltration; resulting in limitation exceedances. The Consent Order was terminated on 23 February 2015 after rehabilitation work was completed on sections of the collection system.
Staff Comments:	No comments were received.
State/Federal Agency Comments:	Virginia Department of Health reviewed the permit application and had no comments.
Public Comments:	No comments were received during the public notice.
Owner Comments:	No comments were received by the owner.

Fact Sheet Attachments

Table of Contents

Lake Land 'Or Wastewater Treatment Plant
VA0060887
2015 Reissuance

ATTACHMENT 1

Flow Frequency Determination

Updated South River Flow Frequency Determination
Land Or WWTP – VA0060887

Mattaponi River near Bowling Green, VA (#01674000):

Drainage Area = 257 mi^2

Low flow		High flow	
1Q10 = 0.26 cfs	0.168 mgd	1Q10 = 14 cfs	9.05 mgd
7Q10 = 0.36 cfs	0.233 mgd	7Q10 = 19 cfs	12.3 mgd
30Q5 = 2.5 cfs	1.6 mgd	30Q10 = 38 cfs	24.6 mgd
30Q10 = 0.93 cfs	0.601 mgd	HM = 0.0 cfs	0.0 mgd

South River above Motto River:

Drainage Area = 23.75 mi^2

Low flow		High flow	
1Q10 = 0.024 cfs	0.16 mgd	1Q10 = 1.29 cfs	.834 mgd
7Q10 = 0.033 cfs	0.021 mgd	7Q10 = 1.76 cfs	1.14 mgd
30Q5 = 0.23 cfs	0.149 mgd	30Q10 = 3.51 cfs	2.27 mgd
30Q10 = 0.086 cfs	0.056 mgd	HM = 0.0 cfs	= 0.0 mgd

(Gaging station data December – May 1943 – 2003)

Attachment 1

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Flow Frequency Determination - Revised
Land 'Or Utility - #VA0060887

TO: April Young, NRO

FROM: Paul Herman, WQAP

DATE: July 30, 1996

COPIES: Ron Gregory, Charles Martin, Dale Phillips, File

This memo supercedes my memo to you dated July 12, 1996. It addresses conditions discovered during the permit writers recent inspection of the subject facility and provides flow frequencies and drainage areas for specific points downstream of the discharge point for modeling purposes.

The inspection showed the outfall location has been incorrect in the permit application and in past permits. The discharge is actually directly to the unnamed tributary approximately 500' upstream from its confluence with the South River. The flow frequencies for the new discharge point are the same as in the original memo. The values at the discharge point were determined by inspection of the USGS Ladysmith Quadrangle topographical map which shows the receiving stream as a swamp at the discharge point. The flow frequencies for swamps are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and the harmonic mean. Please check with Dale Phillips concerning the special considerations given to discharges to swamps.

The discharge travels roughly 500' down the swamp and enters the South River. The drainage area of the swamp at the discharge point is 13.1 mi^2. The drainage area of the South River above the swamp is 2.58 mi^2. The drainage area of the South River above its confluence with the Motto River is 23.75 mi^2 and the drainage area of the Motto River at its mouth is 15.47 mi^2.

The flow frequencies for the South River above the Motto River were determined using the continuous record gage on the Mattaponi River near Bowling Green, VA (#01674000). This gage has been operated by the VDEQ and USGS since 1942 and is located at the Route 605 bridge in Caroline County. The flow frquencies were determined using drainage area proportions and do not address any withdrawals, discharges, or springs which may lie upstream.

Mattaponi River near Bowling Green, VA (#01674000):

Drainage Area = 257 mi^2

1Q10 = 0.50 cfs	High Flow 1Q10 = 25 cfs
7Q10 = 0.57 cfs	High Flow 7Q10 = 31 cfs
30Q5 = 3.4 cfs	HM = 0.0 cfs

South River above Motto River:

Drainage Area = 23.75 mi^2

1Q10 = 0.046 cfs	High Flow 1Q10 = 2.3 cfs
7Q10 = 0.053 cfs	High Flow 7Q10 = 2.9 cfs
30Q5 = 0.31 cfs	HM = 0.0 cfs

The high flow months are December through May. If you have any questions concerning this analysis, please let me know.

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN VIRGINIA REGIONAL OFFICE

1549 OLD BRIDGE ROAD, SUITE 108 WOODBRIDGE, VIRGINIA 22192

SUBJECT: **Land' Or Utility, Inc., VA0060887, Permit Reissuance Flow Increase Modeling**

TO: **Dale Philips, WPS**

FROM: **April J. Young**

DATE: **August 8, 1996**

The Land Or' Utility permit is up for reissuance and the owners have requested an additional flow of .2 MGD be included in with the .1 MGD permit. This memo is to request your assistance in determining the most appropriate way to approach establishing limitations for this discharge.

The original model, circa 1973 (attached), assumed a slight critical stream flow and a flow velocity of .25 fps, over a 5.5 mile segment. Present day critical flow is assumed to be zero, and I believe the flow velocity including the discharge will probably be less than 0.25 fps.

The topo map indicates that the unnamed trib area above the discharge is heavy swamp or marsh area. The discharge from the wastewater plant enters the unnamed tributary approximately 500 feet ahead of the confluence of South River. The UT at the discharge is fairly wide, but defined with a few lily pads and grasses present. It appears that the only reason that the UT is wide at the discharge is due to the enormous culvert pipe, which is under the road, for catastrophic failure of the dam at the main lake. The UT below the discharge, and at the confluence of South River, reduces to about 3- 6 feet, but again is a defined channel. We did not see many other water plants in the stream below the confluence of the two streams. Even with a stream flow from the dam overflow on the day of the inspection, the stream was very muddy, silty and slow moving. South River below Route 1 appears to be well defined and approximately 3-4 feet wide.

Just for the sake of turning over all the stones, I attempted to run the regional model, with my best estimates for the critical flow stream conditions, without much success. Even though the UT and South River are generally contained within a defined channel, it is my best opinion that this channel is very stagnant or of very low velocity during the dry months of the year. Since the facility will require end of pipe ammonia limitations in the 1.5 mg/l range, and the questionable applicability of the regional model to this situation, I am leaning toward the application of effluent limits for swamp and marsh waters (CBOD - 10 mg/l, TKN - 3 mg/l, and D.O. - 3 mg/l).

One point about the "Advisory Notification of Effluent Limits for Swamp and Marsh Water", which has been questioned, is if the TKN limit of 3 mg/l is intended to be a year round limit, or a summer/seasonal limit. I am assuming that it was intended to be a year round limit, but would like your opinion on this question.

I have included the following attachments to aid in your review:

July 12, 1973 Stream Sanitation Analysis and Model
July 30, 1996 Flow Frequency Analysis
June 25, 1996 Facility and Stream Inspection
Stream Inspection Report Form

To: April J. Young@WDBR1@DEQ
Cc:
Bcc:
From: Maynard D. Phillips@WPS@DEQ
Subject:
Date: Tuesday, August 13, 1996 13:21:37 EDT
Attach:
Certify: N
Forwarded by:

I am generally familiar with the streams in and around the Ladysmith area. I agree that application of the state model will be of very limited usefulness for most streams in that area. I do not think that limits of 10,10,3 are out of line, particularly, for a discharge to what is essentially a dry stream (the lake overflow cannot be counted on during extreme drought conditions) having some swamp like characteristicsand would support your judgement to apply such limits wheather or not the stream is a officially a "swamp".

The TKN limits in the swamp waters guidance were designed to reduce the total ultimate BOD discharged to a swamp and thereby limit the impact on D.O. This TKN limit may be tiered based on temperature. I thought that there was a memo from me running around out there on this subject but maybe not. Basically, nBOD is not exerted to any significant extent at temperatures below about 10 degrees centigrade. Therefore if a permit has a TKN limit based on maintenance of D.O. that limit can be completely removed for the period when the monthly average temperature is less than 10 C.

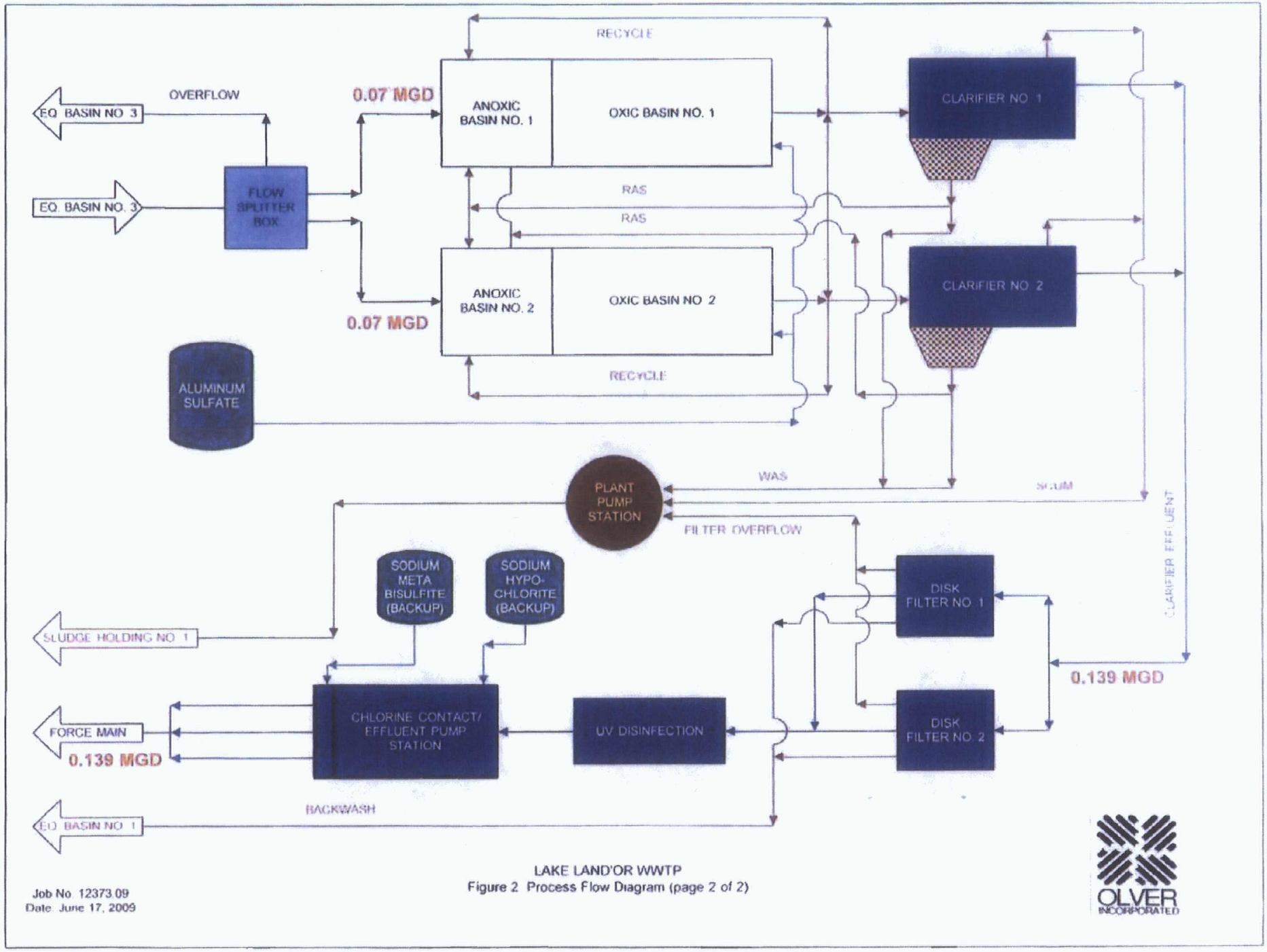
However, now that we have an ammonia standard you will have to put a limit in for ammonia when the TKN limit is not applicable, e.g. you will have a permit with a summer TKN limit to control D.O. and a winter ammonia limit to control toxicity. Note: the limit of 3 TKN assumes that ammonia is zero so a separate ammonia limit is not needed in the summer.

I hope this is sufficient for you to proceed with the Land'Or permit, if you need more assistance or want to discuss any of the issues give me a call, E-Mail or what ever.

By the way, did the instructions for obtaining and printing the graphics from the Rappahannock model work?

ATTACHMENT 2

Facility Schematic/Diagram



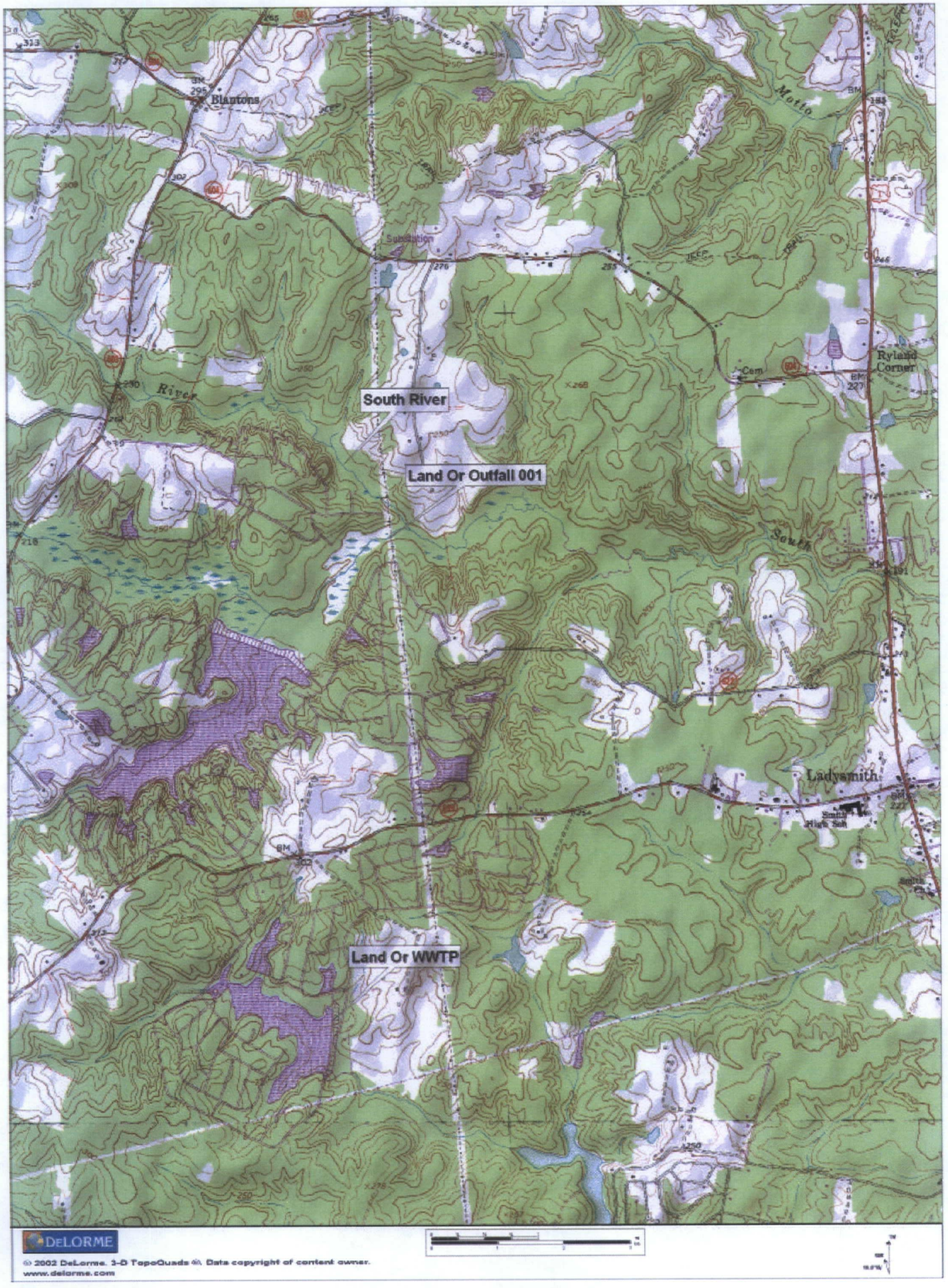
LAKE LAND'OR WWTP
Figure 2 Process Flow Diagram (page 2 of 2)

Job No. 12373.09
Date: June 17, 2009

OLVER INCORPORATED

ATTACHMENT 3

Topographic Map


Blantons
Motto
Substation
Ryland Corner
Cem
South River
Land Or Outfall 001
South
Ladysmith
Land Or WWTP
DeLORME
© 2002 DeLorme. 3-D TopoQuads ®. Data copyright of content owner.
www.delorme.com

ATTACHMENT 4

Inspection Summary Report

Technical Inspection Summary

Comments/Recommendations for Action from the Current Inspection on February 23, 2011:

- **Staffing is not adequate. Ed Braley is the only licensed operator running the facility.**
- **Operations and Maintenance (O&M) Manual not on-site. Mr. Braley is currently working on the new electronic preventative and maintenance schedule for the facility and took it off-site to work on. I was unable to determine if the O&M manual was up to date with the new unit processes that have been placed online since the last technical inspection in March 2009. Updates to the O&M manual were submitted to DEQ on July 12, 2010 and approved on September 7, 2010. DEQ recommended the O&M manual be maintained onsite. As stated in the Sewage Collection and Treatment Regulations, 9 VAC 25-790-290. Manuals. Article 2. Section A: "... The manual shall be updated as necessary and be made available to the operating staff."**
- **Electronic automatic sampler thermometer is not accurate. Ms. Allen compared the temperatures of the DEQ portable NIST certified thermometer with facility's electronic automatic sampler refrigerator thermometer and there was a difference of approximately eight degrees Celsius. The thermometers inside the automatic sampler were in line with DEQ's portable NIST certified thermometer. See attached checklist for comparative readings.**
- **In a phone conversation on March 2, 2011, Mr. Braley informed me he had scheduled a service man to evaluate and troubleshoot the automatic sampler unit. DEQ recommends recording the temperature from the free stranding thermometer inside the auto sampler refrigerator.**
- **Filamentous bacteria in anoxic zones, oxic zones, and secondary sedimentation basin. Mr. Braley is currently adding 9 ½ gallons per day of hypochlorite to both oxic zones to try to eliminate the filamentous bacteria. Mr. Braley said the amount and frequency will vary until the majority of filamentous bacteria are removed from the treatment units.**
- **Dried sludge found on sludge pad and dried sludge from the sludge dewatering building found on the ground along the side of the sludge pad area. See Photos 21 and 22**
- **The initial demonstration of capabilities has not been conducted for Mr. Ed Braley. In an e-mail on March 4, 2011, Ms. Wilson informed me there are no records of an IDC have been conducted for Mr. Braley and that Mr. Braley is working on completing the IDC. Without proof of an IDC Mr. Braley should not be responsible for compliance sample monitoring/reporting. Please submit documentation of the IDC for Mr. Braley to the DEQ-NRO by March 25, 2011.**

ATTACHMENT 5

Planning Statement

To:	Douglas Frasier
From:	Rebecca Shoemaker
Date:	30 March 2015
Subject:	Planning Statement for Lake Land 'Or WWTP
Permit Number:	VA0060887

Information for Outfall 001:

Discharge Type:	minor, municipal
Discharge Flow:	0.22 MGD
Receiving Stream:	South River, UT
Latitude / Longitude:	38° 01' 50" / 77° 32' 59"
Rivermile:	0.12
Streamcode:	8-XDK
Waterbody:	VAN-F19R
Water Quality Standards:	Class III, Section 3, no special standards
Drainage Area:	13.1

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

   This facility discharges to an unnamed tributary to South River that is designated by the streamcode XDK and has not been monitored or assessed. South River is located approximately 0.12 mile downstream from Outfall 001 and DEQ ambient monitoring station 8-STH007.67 is located on South River at Route 743, approximately 5.7 miles downstream from Outfall 001. The following is the water quality summary for this segment of South River, as taken from the 2012 Integrated Report:

   Class III, Section 3

   DEQ monitoring stations located in this segment of South River:
   - *ambient water quality monitoring station 8-STH007.67, at Route 743 (Clifton Road)*

   The aquatic life, recreation, and wildlife uses are considered fully supporting. The fish consumption use was not assessed.

2. Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A.

   No.

3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B.

   Yes.

Table B. Information on Downstream 303(d) Impairments and TMDLs

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in the 2012 Integrated Report							
South River	Recreation*	*E. coli*	8.4 miles	---	---	---	2016
Mattaponi River	Fish Consumption	Mercury	53 miles	---	---	---	2018
		PCBs		---	---	---	2022

* This downstream recreation impairment is listed in the 2012 Integrated Report. More recent bacteria monitoring conducted in South River shows acceptable bacteria values, making this stream segment eligible for delisting in the 2014 Integrated Report, which is currently in draft format and is under review by EPA. It is expected that this segment of South River will be delisted for the recreation use in the final 2014 Integrated Report.

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

   There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

   The Mattaponi River, which is located approximately 53 miles downstream of this facility, is listed with a PCB impairment. In support for the PCB TMDL that is scheduled for development by 2022 for the Mattaponi River, this facility is a candidate for low-level PCB monitoring, based upon its designation as a minor municipal discharger. Low-level PCB analysis uses EPA Method 1668, which is capable of detecting low-level concentrations for all 209 PCB congeners. DEQ staff has concluded that low-level PCB monitoring is not warranted for this facility as this facility is not expected to be a source of or discharge PCBs. Based upon this information, this facility will not be requested to monitor for low-level PCBs.

5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.

   There are no public water supply intakes located within five miles of this discharge.

ATTACHMENT 6

Water Quality Criteria / Wasteload Allocation Analysis

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Lake Land 'Or Permit No.: VA0060887

Receiving Stream: South River, UT Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	mg/L	1Q10 (Annual) =	0 MGD	Annual - 1Q10 Mix =	%	Mean Hardness (as CaCO3) =	50 mg/L
90% Temperature (Annual) =	deg C	7Q10 (Annual) =	0 MGD	- 7Q10 Mix =	%	90% Temp (Annual) =	25 deg C
90% Temperature (Wet season) =	deg C	30Q10 (Annual) =	0 MGD	- 30Q10 Mix =	%	90% Temp (Wet season) =	15 deg C
90% Maximum pH =	SU	1Q10 (Wet season) =	0 MGD	Wet Season - 1Q10 Mix =	%	90% Maximum pH =	8.1 SU
10% Maximum pH =	SU	30Q10 (Wet season)	0 MGD	- 30Q10 Mix =	%	10% Maximum pH =	6.5 SU
Tier Designation (1 or 2) =	1	30Q5 =	0 MGD			Discharge Flow =	0.22 MGD
Public Water Supply (PWS) Y/N? =	n	Harmonic Mean =	0 MGD				
Trout Present Y/N? =	n						
Early Life Stages Present Y/N? =	y						

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile [C]	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin [C]	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	6.95E+00	1.07E+00	na	--	6.95E+00	1.07E+00	na	--	--	--	--	--	--	--	--	--	6.95E+00	1.07E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	6.95E+00	2.03E+00	na	--	6.95E+00	2.03E+00	na	--	--	--	--	--	--	--	--	--	6.95E+00	2.03E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine [C]	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis2-Chloroethyl Ether [C]	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform [C]	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	1.8E+00	6.6E-01	na	--	1.8E+00	6.6E-01	na	--	--	--	--	--	--	--	--	--	1.8E+00	6.6E-01	na	--
Carbon Tetrachloride [C]	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane [C]	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

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(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	3.2E+02	4.2E+01	na	--	3.2E+02	4.2E+01	na	--	--	--	--	--	--	--	--	--	3.2E+02	4.2E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene [C]	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	7.0E+00	5.0E+00	na	--	7.0E+00	5.0E+00	na	--	--	--	--	--	--	--	--	--	7.0E+00	5.0E+00	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD [C]	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE [C]	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT [C]	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine[C]	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane [C]	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane [C]	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene [C]	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin [C]	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene [C]	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine[C]	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

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(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor [C]	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide[C]	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene[C]	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene[C]	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane Alpha-BHC[C]	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane Beta-BHC[C]	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane Gamma-BHC[C] (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone[C]	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	4.9E+01	5.6E+00	na	--	4.9E+01	5.6E+00	na	--	--	--	--	--	--	--	--	--	4.9E+01	5.6E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	- -	- -	1.4E+00	7.7E-01	- -	- -	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	- -	- -
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride [C]	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	1.0E+02	1.1E+01	na	4.6E+03	1.0E+02	1.1E+01	na	4.6E+03	--	--	--	--	--	--	--	--	1.0E+02	1.1E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine[C]	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine[C]	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine[C]	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total[C]	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol [C]	0	5.3E+00	4.0E+00	na	3.0E+01	5.3E+00	4.0E+00	na	3.0E+01	--	--	--	--	--	--	--	--	5.3E+00	4.0E+00	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	4.0E+00	--	--	--	--	--	--	--	--	--	--	na	4.0E+00
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	**2.0E+01**	**5.0E+00**	**na**	**4.2E+03**
Silver	0	1.0E+00	--	na	--	1.0E+00	--	na	--	--	--	--	--	--	--	--	--	**1.0E+00**	**--**	**na**	**--**
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.0E+01**
Tetrachloroethylene[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.3E+01**
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.7E-01**
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.0E+03**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Toxaphene [C]	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	**7.3E-01**	**2.0E-04**	**na**	**2.8E-03**
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	**4.6E-01**	**7.2E-02**	**na**	**--**
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**7.0E+01**
1,1,2-Trichloroethane[C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.6E+02**
Trichloroethylene [C]	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.0E+02**
2,4,6-Trichlorophenol [C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Vinyl Chloride[C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**
Zinc	0	6.5E+01	6.6E+01	na	2.6E+04	6.5E+01	6.6E+01	na	2.6E+04	--	--	--	--	--	--	--	--	**6.5E+01**	**6.6E+01**	**na**	**2.6E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information. Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	3.9E-01
Chromium III	2.5E+01
Chromium VI	6.4E+00
Copper	2.8E+00
Iron	na
Lead	3.4E+00
Manganese	na
Mercury	4.6E-01
Nickel	6.8E+00
Selenium	3.0E+00
Silver	4.2E-01
Zinc	2.6E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

ATTACHMENT 7

October 2010 – May 2015 Effluent Data

DMR QA/QC

Permit #:VA0060887	Facility:Land Or Utility

Due	Parameter Description	QTY AVG	Lim Avg	QTY MAX	Lim Max	CONC MIN	Lim Min	CONC AVG	Lim Avg	CONC MAX	Lim Max
10-Dec-2010	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	1.4	1.3	5.3	1.8
10-Jan-2011	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	1.29	1.3	3.5	1.8
10-Feb-2011	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	0.64	1.3	0.69	1.8
10-Mar-2011	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	0.4	1.3	0.88	1.8
10-Dec-2011	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	0.17	1.3	0.67	1.8
10-Jan-2012	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	0.1	1.3	0.3	1.8
10-Feb-2012	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	2.81	1.3	8.93	1.8
10-Mar-2012	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	0.63	1.3	1.14	1.8
10-Dec-2012	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	0.04	1.3	0.09	1.8
10-Jan-2013	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	0.53	1.3	0.96	1.8
10-Feb-2013	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	1.05	1.3	1.8	1.8
10-Mar-2013	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	0.04	1.3	0.08	1.8
10-Dec-2013	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	0.10	1.3	0.22	1.8
10-Jan-2014	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	0.14	1.3	0.22	1.8
10-Feb-2014	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	0.68	1.3	2.38	1.8
10-Mar-2014	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	0.67	1.3	1.50	1.8
10-Dec-2014	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	0.5	1.3	0.8	1.8
10-Jan-2015	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	1.4	1.3	2.0	1.8
10-Feb-2015	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	1.0	1.3	2.2	1.8
10-Mar-2015	AMMONIA, AS N NOV-FEB	NULL	*********	NULL	*********	NULL	*********	1.0	1.3	1.7	1.8
10-Dec-2010	BOD5, NOV-FEB	3.17	8.3	4.45	12	NULL	*********	6.27	10	8.73	15
10-Jan-2011	BOD5, NOV-FEB	2.3	8.3	4.0	12	NULL	*********	5.82	10	9.4	15
10-Feb-2011	BOD5, NOV-FEB	1.6	8.3	1.6	12	NULL	*********	2.9	10	3.7	15
10-Mar-2011	BOD5, NOV-FEB	0.6	8.3	1.3	12	NULL	*********	1.3	10	2.6	15
10-Dec-2011	BOD5, NOV-FEB	0.6	8.3	1.3	12	NULL	*********	0.9	10	1.7	15
10-Jan-2012	BOD5, NOV-FEB	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Feb-2012	BOD5, NOV-FEB	0.47	8.3	1.2	12	NULL	*********	0.75	10	1.8	15
10-Mar-2012	BOD5, NOV-FEB	0.66	8.3	1.15	12	NULL	*********	1.08	10	2.0	15
10-Dec-2012	BOD5, NOV-FEB	0.4	8.3	1.3	12	NULL	*********	1.2	10	3.7	15
10-Jan-2013	BOD5, NOV-FEB	0.9	8.3	2.1	12	NULL	*********	1.6	10	2.9	15
10-Feb-2013	BOD5, NOV-FEB	.23	8.3	<QL	12	NULL	*********	.39	10	<QL	15
10-Mar-2013	BOD5, NOV-FEB	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Dec-2013	BOD5, NOV-FEB	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Jan-2014	BOD5, NOV-FEB	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Feb-2014	BOD5, NOV-FEB	0.82	8.3	1.85	12	NULL	*********	1.5	10	3.0	15
10-Mar-2014	BOD5, NOV-FEB	4.04	8.3	7.63	12	NULL	*********	3.33	10	5.67	15
10-Dec-2014	BOD5, NOV-FEB	0.4	8.3	1.0	12	NULL	*********	1	10	4	15

10-Jan-2015	BOD5, NOV-FEB	0.3	8.3	0.7	12	NULL	*********	1	10	2	15
10-Feb-2015	BOD5, NOV-FEB	2.1	8.3	6.1	12	NULL	*********	3	10	7	15
10-Mar-2015	BOD5, NOV-FEB	1.6	8.3	2.2	12	NULL	*********	3	10	4	15
10-Nov-2010	CBOD5, MAR-OCT	1.9	8.3	2.3	12	NULL	*********	3.7	10	4.1	15
10-Apr-2011	CBOD5, MAR-OCT	7.0	8.3	24.1	12	NULL	*********	8.8	10	16.2	15
10-May-2011	CBOD5, MAR-OCT	1.1	8.3	2.7	12	NULL	*********	1.6	10	3.8	15
10-Jun-2011	CBOD5, MAR-OCT	1.4	8.3	3.5	12	NULL	*********	2.1	10	4.4	15
10-Jul-2011	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Aug-2011	CBOD5, MAR-OCT	0.3	8.3	1.1	12	NULL	*********	0.6	10	2.2	15
10-Sep-2011	CBOD5, MAR-OCT	0.51	8.3	0.63	12	NULL	*********	1.3	10	1.7	15
10-Oct-2011	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Nov-2011	CBOD5, MAR-OCT	0.3	8.3	<QL	12	NULL	*********	0.5	10	<QL	15
10-Apr-2012	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-May-2012	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Jun-2012	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Jul-2012	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Aug-2012	CBOD5, MAR-OCT	0.5	8.3	2.4	12	NULL	*********	1.2	10	5.6	15
10-Sep-2012	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Oct-2012	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Nov-2012	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Apr-2013	CBOD5, MAR-OCT	1.02	8.3	4.09	12	NULL	*********	1.32	10	5.27	15
10-May-2013	CBOD5, MAR-OCT	0.2	8.3	<QL	12	NULL	*********	0.4	10	<QL	15
10-Jun-2013	CBOD5, MAR-OCT	2.06	8.3	3.93	12	NULL	*********	4.35	10	7.37	15
10-Jul-2013	CBOD5, MAR-OCT	3.56	8.3	9.85	12	NULL	*********	4.71	10	13.40	15
10-Aug-2013	CBOD5, MAR-OCT	0.97	8.3	3.88	12	NULL	*********	2.55	10	8.40	15
10-Sep-2013	CBOD5, MAR-OCT	0.41	8.3	1.63	12	NULL	*********	0.98	10	3.9	15
10-Oct-2013	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Nov-2013	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Apr-2014	CBOD5, MAR-OCT	<1.83	8.3	<2.96	12	NULL	*********	<2.58	10	<3.67	15
10-May-2014	CBOD5, MAR-OCT	<0.53	8.3	<2.47	12	NULL	*********	<0.86	10	<4.0	15
10-Jun-2014	CBOD5, MAR-OCT	0.14	8.3	0.55	12	NULL	*********	0.17	10	0.67	15
10-Jul-2014	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Aug-2014	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Sep-2014	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Oct-2014	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Nov-2014	CBOD5, MAR-OCT	<QL	8.3	<QL	12	NULL	*********	<QL	10	<QL	15
10-Apr-2015	CBOD5, MAR-OCT	1.3	8.3	2.3	12	NULL	*********	2	10	2	15
10-May-2015	CBOD5, MAR-OCT	0.7	8.3	1.2	12	NULL	*********	1	10	1	15
10-Jun-2015	CBOD5, MAR-OCT	0.6	8.3	0.9	12	NULL	*********	1	10	2	15
10-Nov-2010	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	4.18	NL	NULL	*********
10-Dec-2010	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	6.05	NL	NULL	*********
10-Jan-2011	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	2.3	NL	NULL	*********
10-Feb-2011	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	2.12	NL	NULL	*********

10-Mar-2011	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	3.03	NL	NULL	*********
10-Apr-2011	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	2.8	NL	NULL	*********
10-May-2011	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	.8	NL	NULL	*********
10-Jun-2011	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	6.9	NL	NULL	*********
10-Jul-2011	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	5.5	NL	NULL	*********
10-Aug-2011	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	4.2	NL	NULL	*********
10-Sep-2011	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	2.0	NL	NULL	*********
10-Oct-2011	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	0.7	NL	NULL	*********
10-Nov-2011	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	1.26	NL	NULL	*********
10-Dec-2011	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	0.19	NL	NULL	*********
10-Jan-2012	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	0.93	NL	NULL	*********
10-Feb-2012	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	0.06	NL	NULL	*********
10-Mar-2012	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	5.57	NL	NULL	*********
10-Apr-2012	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	2.2	NL	NULL	*********
10-May-2012	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	6.28	NL	NULL	*********
10-Jun-2012	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	6.21	NL	NULL	*********
10-Jul-2012	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	10.75	NL	NULL	*********
10-Aug-2012	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	10.35	NL	NULL	*********
10-Sep-2012	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	15.4	NL	NULL	*********
10-Oct-2012	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	8.97	NL	NULL	*********
10-Nov-2012	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	8.79	NL	NULL	*********
10-Dec-2012	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	12.35	NL	NULL	*********
10-Jan-2013	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	2.33	NL	NULL	*********
10-Feb-2013	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	2.95	NL	NULL	*********
10-Mar-2013	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	4.10	NL	NULL	*********
10-Apr-2013	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	2.66	NL	NULL	*********
10-May-2013	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	2.10	NL	NULL	*********
10-Jun-2013	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	1.58	NL	NULL	*********
10-Jul-2013	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	1.12	NL	NULL	*********
10-Aug-2013	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	5.76	NL	NULL	*********
10-Sep-2013	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	2.97	NL	NULL	*********
10-Oct-2013	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	3.28	NL	NULL	*********
10-Nov-2013	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	3.19	NL	NULL	*********
10-Dec-2013	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	5.16	NL	NULL	*********
10-Jan-2014	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	3.35	NL	NULL	*********
10-Feb-2014	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	4.92	NL	NULL	*********
10-Mar-2014	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	6.50	NL	NULL	*********
10-Apr-2014	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	2.96	NL	NULL	*********
10-May-2014	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	2.80	NL	NULL	*********
10-Jun-2014	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	3.04	NL	NULL	*********
10-Jul-2014	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	3.42	NL	NULL	*********
10-Aug-2014	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	6.38	NL	NULL	*********
10-Sep-2014	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	6.75	NL	NULL	*********

10-Oct-2014	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	3.36	NL	NULL	*********
10-Nov-2014	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	1.45	NL	NULL	*********
10-Dec-2014	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	4.37	NL	NULL	*********
10-Jan-2015	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	3.5	NL	NULL	*********
10-Feb-2015	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	3.03	NL	NULL	*********
10-Mar-2015	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	4.48	NL	NULL	*********
10-Apr-2015	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	2.07	NL	NULL	*********
10-May-2015	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	3.65	NL	NULL	*********
10-Jun-2015	NITRITE+NITRATE-N,TOTAL	NULL	*********	NULL	*********	NULL	*********	3.5	NL	NULL	*********
10-Nov-2010	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	8.56	NL	NULL	*********
10-Dec-2010	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	6.69	NL	NULL	*********
10-Jan-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	5.4	NL	NULL	*********
10-Feb-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	3.3	NL	NULL	*********
10-Mar-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	5.4	NL	NULL	*********
10-Apr-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	5.74	NL	NULL	*********
10-May-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	2.4	NL	NULL	*********
10-Jun-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	8.55	NL	NULL	*********
10-Jul-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	6.8	NL	NULL	*********
10-Aug-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	5	NL	NULL	*********
10-Sep-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	2.97	NL	NULL	*********
10-Oct-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	1.9	NL	NULL	*********
10-Nov-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	1.26	NL	NULL	*********
10-Dec-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	0.82	NL	NULL	*********
10-Jan-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	1.65	NL	NULL	*********
10-Feb-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	3.01	NL	NULL	*********
10-Mar-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	6.31	NL	NULL	*********
10-Apr-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	3.64	NL	NULL	*********
10-May-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	7.34	NL	NULL	*********
10-Jun-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	4.90	NL	NULL	*********
10-Jul-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	12.39	NL	NULL	*********
10-Aug-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	12.25	NL	NULL	*********
10-Sep-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	19.68	NL	NULL	*********
10-Oct-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	11.58	NL	NULL	*********
10-Nov-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	9.55	NL	NULL	*********
10-Dec-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	13.41	NL	NULL	*********
10-Jan-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	3.93	NL	NULL	*********
10-Feb-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	4.43	NL	NULL	*********
10-Mar-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	5.19	NL	NULL	*********
10-Apr-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	3.55	NL	NULL	*********
10-May-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	3.11	NL	NULL	*********
10-Jun-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	4.33	NL	NULL	*********
10-Jul-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	4.97	NL	NULL	*********

10-Aug-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	11.90	NL	NULL	*********
10-Sep-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	5.75	NL	NULL	*********
10-Oct-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	5.04	NL	NULL	*********
10-Nov-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	4.31	NL	NULL	*********
10-Dec-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	6.62	NL	NULL	*********
10-Jan-2014	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	4.31	NL	NULL	*********
10-Feb-2014	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	6.91	NL	NULL	*********
10-Mar-2014	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	8.62	NL	NULL	*********
10-Apr-2014	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	4.06	NL	NULL	*********
10-May-2014	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	3.55	NL	NULL	*********
10-Jun-2014	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	3.84	NL	NULL	*********
10-Jul-2014	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	4.29	NL	NULL	*********
10-Aug-2014	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	7.17	NL	NULL	*********
10-Sep-2014	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	7.59	NL	NULL	*********
10-Oct-2014	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	4.21	NL	NULL	*********
10-Nov-2014	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	2.21	NL	NULL	*********
10-Dec-2014	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	5.4	NL	NULL	*********
10-Jan-2015	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	5.38	NL	NULL	*********
10-Feb-2015	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	4.49	NL	NULL	*********
10-Mar-2015	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	6.04	NL	NULL	*********
10-Apr-2015	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	3.38	NL	NULL	*********
10-May-2015	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	4.56	NL	NULL	*********
10-Jun-2015	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	*********	4.49	NL	NULL	*********
10-Jan-2011	NITROGEN, TOTAL (AS N) (CALENDAR YEAR)	NULL	*********	NULL	*********	NULL	*********	5.82	8.0	NULL	*********
10-Jan-2012	NITROGEN, TOTAL (AS N) (CALENDAR YEAR)	NULL	*********	NULL	*********	NULL	*********	3.82	8.0	NULL	*********
10-Jan-2013	NITROGEN, TOTAL (AS N) (CALENDAR YEAR)	NULL	*********	NULL	*********	NULL	*********	8.9	8.0	NULL	*********
10-Jan-2014	NITROGEN, TOTAL (AS N) (CALENDAR YEAR)	NULL	*********	NULL	*********	NULL	*********	5.44	8.0	NULL	*********
10-Jan-2015	NITROGEN, TOTAL (AS N) (CALENDAR YEAR)	NULL	*********	NULL	*********	NULL	*********	5.52	8.0	NULL	*********
10-Nov-2010	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.78	NL	NULL	*********
10-Dec-2010	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	6.09	NL	NULL	*********
10-Jan-2011	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.82	NL	NULL	*********
10-Feb-2011	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	3.3	NL	NULL	*********
10-Mar-2011	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.35	NL	NULL	*********
10-Apr-2011	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.81	NL	NULL	*********

10-May-2011	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.2	NL	NULL	*********
10-Jun-2011	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.1	NL	NULL	*********
10-Jul-2011	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.37	NL	NULL	*********
10-Aug-2011	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	138.7	NL	NULL	*********
10-Sep-2011	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	1425.0	NL	NULL	*********
10-Oct-2011	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	1574.4	NL	NULL	*********
10-Nov-2011	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	1615.45	NL	NULL	*********
10-Dec-2011	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	1652.6	NL	NULL	*********
10-Jan-2012	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	3.82	NL	NULL	*********
10-Feb-2012	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	2.3	NL	NULL	*********
10-Mar-2012	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.31	NL	NULL	*********
10-Apr-2012	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.08	NL	NULL	*********
10-May-2012	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.90	NL	NULL	*********
10-Jun-2012	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.68	NL	NULL	*********
10-Jul-2012	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	6.07	NL	NULL	*********
10-Aug-2012	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	6.95	NL	NULL	*********
10-Sep-2012	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	8.54	NL	NULL	*********
10-Oct-2012	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	8.88	NL	NULL	*********
10-Nov-2012	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	240.74	NL	NULL	*********
10-Dec-2012	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	9.35	NL	NULL	*********
10-Jan-2013	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	8.9	NL	NULL	*********
10-Feb-2013	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.43	NL	NULL	*********
10-Mar-2013	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.81	NL	NULL	*********
10-Apr-2013	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.39	NL	NULL	*********

10-May-2013	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.07	NL	NULL	*********
10-Jun-2013	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.12	NL	NULL	*********
10-Jul-2013	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.26	NL	NULL	*********
10-Aug-2013	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.35	NL	NULL	*********
10-Sep-2013	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.4	NL	NULL	*********
10-Oct-2013	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.36	NL	NULL	*********
10-Nov-2013	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.04	NL	NULL	*********
10-Dec-2013	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.44	NL	NULL	*********
10-Jan-2014	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.34	NL	NULL	*********
10-Feb-2014	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	6.91	NL	NULL	*********
10-Mar-2014	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	7.76	NL	NULL	*********
10-Apr-2014	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	6.53	NL	NULL	*********
10-May-2014	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.78	NL	NULL	*********
10-Jun-2014	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.38	NL	NULL	*********
10-Jul-2014	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.21	NL	NULL	*********
10-Aug-2014	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.49	NL	NULL	*********
10-Sep-2014	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.75	NL	NULL	*********
10-Oct-2014	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.58	NL	NULL	*********
10-Nov-2014	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.58	NL	NULL	*********
10-Dec-2014	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.54	NL	NULL	*********
10-Jan-2015	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	5.52	NL	NULL	*********
10-Feb-2015	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.49	NL	NULL	*********
10-Mar-2015	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	395.4	NL	NULL	*********
10-Apr-2015	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.64	NL	NULL	*********

10-May-2015	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.62	*NL*	NULL	*********
10-Jun-2015	NITROGEN, TOTAL (AS N) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	4.59	*NL*	NULL	*********
10-Nov-2010	pH	NULL	*********	NULL	*********	6.9	*6.0*	NULL	*********	7.3	*9.0*
10-Dec-2010	pH	NULL	*********	NULL	*********	6.45	*6.0*	NULL	*********	7.36	*9.0*
10-Jan-2011	pH	NULL	*********	NULL	*********	6.8	*6.0*	NULL	*********	7.9	*9.0*
10-Feb-2011	pH	NULL	*********	NULL	*********	6.7	*6.0*	NULL	*********	7.05	*9.0*
10-Mar-2011	pH	NULL	*********	NULL	*********	6.5	*6.0*	NULL	*********	8.2	*9.0*
10-Apr-2011	pH	NULL	*********	NULL	*********	7.1	*6.0*	NULL	*********	8.9	*9.0*
10-May-2011	pH	NULL	*********	NULL	*********	7.4	*6.0*	NULL	*********	8.4	*9.0*
10-Jun-2011	pH	NULL	*********	NULL	*********	7.1	*6.0*	NULL	*********	8	*9.0*
10-Jul-2011	pH	NULL	*********	NULL	*********	6.8	*6.0*	NULL	*********	7.8	*9.0*
10-Aug-2011	pH	NULL	*********	NULL	*********	7	*6.0*	NULL	*********	7.6	*9.0*
10-Sep-2011	pH	NULL	*********	NULL	*********	6.8	*6.0*	NULL	*********	7.5	*9.0*
10-Oct-2011	pH	NULL	*********	NULL	*********	6.8	*6.0*	NULL	*********	8.5	*9.0*
10-Nov-2011	pH	NULL	*********	NULL	*********	6.7	*6.0*	NULL	*********	8.5	*9.0*
10-Dec-2011	pH	NULL	*********	NULL	*********	6.8	*6.0*	NULL	*********	7.7	*9.0*
10-Jan-2012	pH	NULL	*********	NULL	*********	6.2	*6.0*	NULL	*********	7.6	*9.0*
10-Feb-2012	pH	NULL	*********	NULL	*********	6.1	*6.0*	NULL	*********	7.5	*9.0*
10-Mar-2012	pH	NULL	*********	NULL	*********	7	*6.0*	NULL	*********	7.4	*9.0*
10-Apr-2012	pH	NULL	*********	NULL	*********	7	*6.0*	NULL	*********	8.7	*9.0*
10-May-2012	pH	NULL	*********	NULL	*********	7.1	*6.0*	NULL	*********	7.6	*9.0*
10-Jun-2012	pH	NULL	*********	NULL	*********	7.1	*6.0*	NULL	*********	8	*9.0*
10-Jul-2012	pH	NULL	*********	NULL	*********	7	*6.0*	NULL	*********	7.8	*9.0*
10-Aug-2012	pH	NULL	*********	NULL	*********	7	*6.0*	NULL	*********	8	*9.0*
10-Sep-2012	pH	NULL	*********	NULL	*********	7.2	*6.0*	NULL	*********	8.2	*9.0*
10-Oct-2012	pH	NULL	*********	NULL	*********	7.1	*6.0*	NULL	*********	8.1	*9.0*
10-Nov-2012	pH	NULL	*********	NULL	*********	6.5	*6.0*	NULL	*********	7.7	*9.0*
10-Dec-2012	pH	NULL	*********	NULL	*********	6.9	*6.0*	NULL	*********	7.2	*9.0*
10-Jan-2013	pH	NULL	*********	NULL	*********	6.7	*6.0*	NULL	*********	7.8	*9.0*
10-Feb-2013	pH	NULL	*********	NULL	*********	6.4	*6.0*	NULL	*********	7.6	*9.0*
10-Mar-2013	pH	NULL	*********	NULL	*********	6.9	*6.0*	NULL	*********	8	*9.0*
10-Apr-2013	pH	NULL	*********	NULL	*********	7.1	*6.0*	NULL	*********	7.7	*9.0*
10-May-2013	pH	NULL	*********	NULL	*********	6.7	*6.0*	NULL	*********	7.9	*9.0*
10-Jun-2013	pH	NULL	*********	NULL	*********	6.7	*6.0*	NULL	*********	7.7	*9.0*
10-Jul-2013	pH	NULL	*********	NULL	*********	6.7	*6.0*	NULL	*********	7.7	*9.0*
10-Aug-2013	pH	NULL	*********	NULL	*********	6.5	*6.0*	NULL	*********	7.2	*9.0*
10-Sep-2013	pH	NULL	*********	NULL	*********	6.7	*6.0*	NULL	*********	7.3	*9.0*
10-Oct-2013	pH	NULL	*********	NULL	*********	6.6	*6.0*	NULL	*********	7.2	*9.0*
10-Nov-2013	pH	NULL	*********	NULL	*********	6.5	*6.0*	NULL	*********	7.2	*9.0*
10-Dec-2013	pH	NULL	*********	NULL	*********	7	*6.0*	NULL	*********	7.8	*9.0*
10-Jan-2014	pH	NULL	*********	NULL	*********	6.8	*6.0*	NULL	*********	8.4	*9.0*
10-Feb-2014	pH	NULL	*********	NULL	*********	6.5	*6.0*	NULL	*********	8.3	*9.0*

10-Mar-2014	pH	NULL	*********	NULL	*********	6.7	*6.0*	NULL	*********	8.4	*9.0*
10-Apr-2014	pH	NULL	*********	NULL	*********	6.6	*6.0*	NULL	*********	7.7	*9.0*
10-May-2014	pH	NULL	*********	NULL	*********	6.2	*6.0*	NULL	*********	7.7	*9.0*
10-Jun-2014	pH	NULL	*********	NULL	*********	6.3	*6.0*	NULL	*********	8.2	*9.0*
10-Jul-2014	pH	NULL	*********	NULL	*********	6.7	*6.0*	NULL	*********	7.7	*9.0*
10-Aug-2014	pH	NULL	*********	NULL	*********	6.9	*6.0*	NULL	*********	7.9	*9.0*
10-Sep-2014	pH	NULL	*********	NULL	*********	6.9	*6.0*	NULL	*********	7.7	*9.0*
10-Oct-2014	pH	NULL	*********	NULL	*********	6.9	*6.0*	NULL	*********	7.9	*9.0*
10-Nov-2014	pH	NULL	*********	NULL	*********	6.9	*6.0*	NULL	*********	7.6	*9.0*
10-Dec-2014	pH	NULL	*********	NULL	*********	6.9	*6.0*	NULL	*********	8	*9.0*
10-Jan-2015	pH	NULL	*********	NULL	*********	6.8	*6.0*	NULL	*********	7.7	*9.0*
10-Feb-2015	pH	NULL	*********	NULL	*********	7	*6.0*	NULL	*********	7.8	*9.0*
10-Mar-2015	pH	NULL	*********	NULL	*********	6.7	*6.0*	NULL	*********	7.8	*9.0*
10-Apr-2015	pH	NULL	*********	NULL	*********	6.7	*6.0*	NULL	*********	7.4	*9.0*
10-May-2015	pH	NULL	*********	NULL	*********	6.7	*6.0*	NULL	*********	7.8	*9.0*
10-Jun-2015	pH	NULL	*********	NULL	*********	6.3	*6.0*	NULL	*********	7.9	*9.0*
				all pH data			*90th percentile*		*8.1*		
							10th percentile		*6.5*		
10-Nov-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.015	*NL*	NULL	*********
10-Dec-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	.64	*NL*	NULL	*********
10-Jan-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	.4	*NL*	NULL	*********
10-Feb-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.66	*NL*	NULL	*********
10-Mar-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.3	*NL*	NULL	*********
10-Apr-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	.78	*NL*	NULL	*********
10-May-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.38	*NL*	NULL	*********
10-Jun-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.87	*NL*	NULL	*********
10-Jul-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	1.2	*NL*	NULL	*********
10-Aug-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	.63	*NL*	NULL	*********
10-Sep-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.59	*NL*	NULL	*********
10-Oct-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	.21	*NL*	NULL	*********
10-Nov-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.68	*NL*	NULL	*********
10-Dec-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.29	*NL*	NULL	*********
10-Jan-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.34	*NL*	NULL	*********
10-Feb-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.29	*NL*	NULL	*********
10-Mar-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.26	*NL*	NULL	*********
10-Apr-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.37	*NL*	NULL	*********
10-May-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.20	*NL*	NULL	*********
10-Jun-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.30	*NL*	NULL	*********
10-Jul-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.6	*NL*	NULL	*********
10-Aug-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	1.32	*NL*	NULL	*********
10-Sep-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.98	*NL*	NULL	*********

10-Oct-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.67	NL	NULL	*********
10-Nov-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	1.34	NL	NULL	*********
10-Dec-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.75	NL	NULL	*********
10-Jan-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.83	NL	NULL	*********
10-Feb-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.08	NL	NULL	*********
10-Mar-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.21	NL	NULL	*********
10-Apr-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.11	NL	NULL	*********
10-May-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.22	NL	NULL	*********
10-Jun-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	3.75	NL	NULL	*********
10-Jul-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	1.89	NL	NULL	*********
10-Aug-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	3.27	NL	NULL	*********
10-Sep-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	1.72	NL	NULL	*********
10-Oct-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	1.07	NL	NULL	*********
10-Nov-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.20	NL	NULL	*********
10-Dec-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.33	NL	NULL	*********
10-Jan-2014	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.13	NL	NULL	*********
10-Feb-2014	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.17	NL	NULL	*********
10-Mar-2014	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.19	NL	NULL	*********
10-Apr-2014	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.10	NL	NULL	*********
10-May-2014	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.15	NL	NULL	*********
10-Jun-2014	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.19	NL	NULL	*********
10-Jul-2014	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.28	NL	NULL	*********
10-Aug-2014	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.18	NL	NULL	*********
10-Sep-2014	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.20	NL	NULL	*********
10-Oct-2014	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.13	NL	NULL	*********
10-Nov-2014	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0	NL	NULL	*********
10-Dec-2014	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.2	NL	NULL	*********
10-Jan-2015	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.10	NL	NULL	*********
10-Feb-2015	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.35	NL	NULL	*********
10-Mar-2015	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.20	NL	NULL	*********
10-Apr-2015	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.17	NL	NULL	*********
10-May-2015	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.12	NL	NULL	*********
10-Jun-2015	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	*********	0.18	NL	NULL	*********
10-Jan-2011	PHOSPHORUS, TOTAL (AS P) (CALENDAR YEAR)	NULL	*********	NULL	*********	NULL	*********	.72	1.0	NULL	*********
10-Jan-2012	PHOSPHORUS, TOTAL (AS P) (CALENDAR YEAR)	NULL	*********	NULL	*********	NULL	*********	0.58	1.0	NULL	*********
10-Jan-2013	PHOSPHORUS, TOTAL (AS P) (CALENDAR YEAR)	NULL	*********	NULL	*********	NULL	*********	0.66	1.0	NULL	*********
10-Jan-2014	PHOSPHORUS, TOTAL (AS P) (CALENDAR YEAR)	NULL	*********	NULL	*********	NULL	*********	1.08	1.0	NULL	*********
10-Jan-2015	PHOSPHORUS, TOTAL (AS P) (CALENDAR YEAR)	NULL	*********	NULL	*********	NULL	*********	0.16	1.0	NULL	*********
10-Nov-2010	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.76	NL	NULL	*********

10-Dec-2010	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	.79	NL	NULL	*********
10-Jan-2011	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	.72	NL	NULL	*********
10-Feb-2011	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.66	NL	NULL	*********
10-Mar-2011	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	.48	NL	NULL	*********
10-Apr-2011	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.58	NL	NULL	*********
10-May-2011	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.53	NL	NULL	*********
10-Jun-2011	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.6	NL	NULL	*********
10-Jul-2011	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.69	NL	NULL	*********
10-Aug-2011	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	19.7	NL	NULL	*********
10-Sep-2011	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	194.1	NL	NULL	*********
10-Oct-2011	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	208.5	NL	NULL	*********
10-Nov-2011	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	234.02	NL	NULL	*********
10-Dec-2011	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	247.5	NL	NULL	*********
10-Jan-2012	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.58	NL	NULL	*********
10-Feb-2012	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.29	NL	NULL	*********
10-Mar-2012	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.27	NL	NULL	*********
10-Apr-2012	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.3	NL	NULL	*********
10-May-2012	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.28	NL	NULL	*********
10-Jun-2012	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.28	NL	NULL	*********
10-Jul-2012	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.33	NL	NULL	*********
10-Aug-2012	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.47	NL	NULL	*********
10-Sep-2012	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.54	NL	NULL	*********
10-Oct-2012	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.55	NL	NULL	*********
10-Nov-2012	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	34.48	NL	NULL	*********

10-Dec-2012	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.64	NL	NULL	*********
10-Jan-2013	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.66	NL	NULL	*********
10-Feb-2013	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.08	NL	NULL	*********
10-Mar-2013	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.14	NL	NULL	*********
10-Apr-2013	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.13	NL	NULL	*********
10-May-2013	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.15	NL	NULL	*********
10-Jun-2013	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.87	NL	NULL	*********
10-Jul-2013	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	1.04	NL	NULL	*********
10-Aug-2013	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	1.36	NL	NULL	*********
10-Sep-2013	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	1.41	NL	NULL	*********
10-Oct-2013	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	1.37	NL	NULL	*********
10-Nov-2013	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	1.25	NL	NULL	*********
10-Dec-2013	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	1.17	NL	NULL	*********
10-Jan-2014	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	1.08	NL	NULL	*********
10-Feb-2014	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	.17	NL	NULL	*********
10-Mar-2014	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.18	NL	NULL	*********
10-Apr-2014	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.15	NL	NULL	*********
10-May-2014	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.15	NL	NULL	*********
10-Jun-2014	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.16	NL	NULL	*********
10-Jul-2014	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.18	NL	NULL	*********
10-Aug-2014	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.18	NL	NULL	*********
10-Sep-2014	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.18	NL	NULL	*********
10-Oct-2014	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.18	NL	NULL	*********
10-Nov-2014	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.18	NL	NULL	*********

10-Dec-2014	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.16	*NL*	NULL	*********
10-Jan-2015	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.16	*NL*	NULL	*********
10-Feb-2015	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	.35	*NL*	NULL	*********
10-Mar-2015	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	21.8	*NL*	NULL	*********
10-Apr-2015	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.24	*NL*	NULL	*********
10-May-2015	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.21	*NL*	NULL	*********
10-Jun-2015	PHOSPHORUS, TOTAL (AS P) (YEAR-TO-DATE)	NULL	*********	NULL	*********	NULL	*********	0.20	*NL*	NULL	*********
10-Nov-2010	TKN, MAR-OCT	2.0	*5.5*	5.1	*8.3*	NULL	*********	1.7	*3.0*	3.6	*4.5*
10-Apr-2011	TKN, MAR-OCT	13.2	*5.5*	21.7	*8.3*	NULL	*********	7.9	*3.0*	9.2	*4.5*
10-May-2011	TKN, MAR-OCT	1.9	*5.5*	2.3	*8.3*	NULL	*********	1.4	*3.0*	1.7	*4.5*
10-Jun-2011	TKN, MAR-OCT	2.4	*5.5*	3.0	*8.3*	NULL	*********	1.8	*3.0*	2.5	*4.5*
10-Jul-2011	TKN, MAR-OCT	1.2	*5.5*	1.4	*8.3*	NULL	*********	1.2	*3.0*	1.2	*4.5*
10-Aug-2011	TKN, MAR-OCT	1.2	*5.5*	2.0	*8.3*	NULL	*********	1.1	*3.0*	1.4	*4.5*
10-Sep-2011	TKN, MAR-OCT	0.8	*5.5*	0.7	*8.3*	NULL	*********	0.9	*3.0*	1.0	*4.5*
10-Oct-2011	TKN, MAR-OCT	2.0	*5.5*	3.9	*8.3*	NULL	*********	1.1	*3.0*	1.4	*4.5*
10-Nov-2011	TKN, MAR-OCT	1.0	*5.5*	1.1	*8.3*	NULL	*********	0.7	*3.0*	1.0	*4.5*
10-Apr-2012	TKN, MAR-OCT	2.4	*5.5*	3.0	*8.3*	NULL	*********	1.60	*3.0*	2.08	*4.5*
10-May-2012	TKN, MAR-OCT	1.01	*5.5*	1.51	*8.3*	NULL	*********	0.90	*3.0*	1.26	*4.5*
10-Jun-2012	TKN, MAR-OCT	2.5	*5.5*	2.9	*8.3*	NULL	*********	2.0	*3.0*	2.4	*4.5*
10-Jul-2012	TKN, MAR-OCT	1.8	*5.5*	2.4	*8.3*	NULL	*********	2.0	*3.0*	2.7	*4.5*
10-Aug-2012	TKN, MAR-OCT	1.8	*5.5*	2.3	*8.3*	NULL	*********	2.3	*3.0*	2.8	*4.5*
10-Sep-2012	TKN, MAR-OCT	3.2	*5.5*	3.3	*8.3*	NULL	*********	4.2	*3.0*	4.1	*4.5*
10-Oct-2012	TKN, MAR-OCT	2.1	*5.5*	2.4	*8.3*	NULL	*********	2.5	*3.0*	2.8	*4.5*
10-Nov-2012	TKN, MAR-OCT	0.6	*5.5*	0.8	*8.3*	NULL	*********	0.8	*3.0*	1.0	*4.5*
10-Apr-2013	TKN, MAR-OCT	0.79	*5.5*	0.95	*8.3*	NULL	*********	0.90	*3.0*	1.12	*4.5*
10-May-2013	TKN, MAR-OCT	0.7	*5.5*	0.7	*8.3*	NULL	*********	1.1	*3.0*	1.2	*4.5*
10-Jun-2013	TKN, MAR-OCT	1.75	*5.5*	3.26	*8.3*	NULL	*********	2.62	*3.0*	3.03	*4.5*
10-Jul-2013	TKN, MAR-OCT	6.54	*5.5*	10.76	*8.3*	NULL	*********	4.22	*3.0*	6.55	*4.5*
10-Aug-2013	TKN, MAR-OCT	2.24	*5.5*	7.89	*8.3*	NULL	*********	4.94	*3.0*	17.06	*4.5*
10-Sep-2013	TKN, MAR-OCT	2.54	*5.5*	6.69	*8.3*	NULL	*********	6.17	*3.0*	16.41	*4.5*
10-Oct-2013	TKN, MAR-OCT	0.64	*5.5*	1.3	*8.3*	NULL	*********	1.64	*3.0*	3.21	*4.5*
10-Nov-2013	TKN, MAR-OCT	2.07	*5.5*	1.78	*8.3*	NULL	*********	1.85	*3.0*	2.12	*4.5*
10-Apr-2014	TKN, MAR-OCT	0.70	*5.5*	0.98	*8.3*	NULL	*********	0.98	*3.0*	1.19	*4.5*
10-May-2014	TKN, MAR-OCT	0.94	*5.5*	0.66	*8.3*	NULL	*********	0.85	*3.0*	1.07	*4.5*
10-Jun-2014	TKN, MAR-OCT	4.48	*5.5*	4.71	*8.3*	NULL	*********	0.83	*3.0*	0.84	*4.5*
10-Jul-2014	TKN, MAR-OCT	0.41	*5.5*	0.45	*8.3*	NULL	*********	0.79	*3.0*	0.91	*4.5*
10-Aug-2014	TKN, MAR-OCT	0.31	*5.5*	0.33	*8.3*	NULL	*********	0.77	*3.0*	0.91	*4.5*
10-Sep-2014	TKN, MAR-OCT	0.62	*5.5*	0.73	*8.3*	NULL	*********	0.73	*3.0*	0.88	*4.5*

10-Oct-2014	TKN, MAR-OCT	0.27	5.5	0.31	8.3	NULL	**********	0.82	3.0	0.91	4.5
10-Nov-2014	TKN, MAR-OCT	0.32	5.5	0.40	8.3	NULL	**********	0.84	3.0	0.93	4.5
10-Apr-2015	TKN, MAR-OCT	2.8	5.5	3.1	8.3	NULL	**********	1.8	3.0	2.2	4.5
10-May-2015	TKN, MAR-OCT	0.7	5.5	1.1	8.3	NULL	**********	1.1	3.0	1.4	4.5
10-Jun-2015	TKN, MAR-OCT	0.4	5.5	0.5	8.3	NULL	**********	0.9	3.0	0.9	4.5
10-Nov-2010	TSS	.53	8.3	.66	12	NULL	**********	1.0	10	1.0	15
10-Dec-2010	TSS	.64	8.3	1.18	12	NULL	**********	1.23	10	2.07	15
10-Jan-2011	TSS	.69	8.3	1.0	12	NULL	**********	1.62	10	2.9	15
10-Feb-2011	TSS	.05	8.3	0.22	12	NULL	**********	0.1	10	0.5	15
10-Mar-2011	TSS	0.3	8.3	0.9	12	NULL	**********	0.6	10	2.1	15
10-Apr-2011	TSS	13.1	8.3	54.0	12	NULL	**********	14.1	10	37.4	15
10-May-2011	TSS	0.7	8.3	1.4	12	NULL	**********	1.2	10	2.1	15
10-Jun-2011	TSS	2.8	8.3	4.1	12	NULL	**********	3.8	10	5.1	15
10-Jul-2011	TSS	<QL	8.3	<QL	12	NULL	**********	<QL	10	<QL	15
10-Aug-2011	TSS	0.2	8.3	0.4	12	NULL	**********	0.4	10	0.8	15
10-Sep-2011	TSS	0.06	8.3	0.3	12	NULL	**********	0.16	10	<QL	15
10-Oct-2011	TSS	.3	8.3	1.0	12	NULL	**********	.3	10	1.1	15
10-Nov-2011	TSS	0.6	8.3	1.6	12	NULL	**********	0.8	10	2.7	15
10-Dec-2011	TSS	0.1	8.3	0.3	12	NULL	**********	0.2	10	0.4	15
10-Jan-2012	TSS	0.1	8.3	0.2	12	NULL	**********	0.1	10	0.4	15
10-Feb-2012	TSS	0.79	8.3	1.19	12	NULL	**********	1.3	10	1.9	15
10-Mar-2012	TSS	0.76	8.3	0.43	12	NULL	**********	1.02	10	0.77	15
10-Apr-2012	TSS	0.36	8.3	0.70	12	NULL	**********	0.43	10	0.77	15
10-May-2012	TSS	0.05	8.3	0.23	12	NULL	**********	0.08	10	0.33	15
10-Jun-2012	TSS	<QL	8.3	<QL	12	NULL	**********	<QL	10	<QL	15
10-Jul-2012	TSS	<QL	8.3	<QL	12	NULL	**********	<QL	10	<QL	15
10-Aug-2012	TSS	<QL	8.3	<QL	12	NULL	**********	<QL	10	<QL	15
10-Sep-2012	TSS	0.6	8.3	1.7	12	NULL	**********	1.6	10	4.5	15
10-Oct-2012	TSS	0.2	8.3	0.4	12	NULL	**********	0.5	10	1.1	15
10-Nov-2012	TSS	0.5	8.3	0.7	12	NULL	**********	1.4	10	2.1	15
10-Dec-2012	TSS	1.6	8.3	1.6	12	NULL	**********	4.4	10	4.6	15
10-Jan-2013	TSS	8.7	8.3	32.4	12	NULL	**********	12.5	10	43.6	15
10-Feb-2013	TSS	1.18	8.3	3.2	12	NULL	**********	1.42	10	2.2	15
10-Mar-2013	TSS	0.58	8.3	0.60	12	NULL	**********	1.02	10	1.33	15
10-Apr-2013	TSS	2.14	8.3	2.27	12	NULL	**********	2.6	10	3.0	15
10-May-2013	TSS	1.7	8.3	1.73	12	NULL	**********	3.0	10	2.9	15
10-Jun-2013	TSS	7.84	8.3	10.99	12	NULL	**********	12.75	10	15.9	15
10-Jul-2013	TSS	7.1	8.3	10.4	12	NULL	**********	5.07	10	7.05	15
10-Aug-2013	TSS	1.96	8.3	4.18	12	NULL	**********	3.57	10	9.03	15
10-Sep-2013	TSS	0.90	8.3	1.95	12	NULL	**********	2.16	10	4.83	15
10-Oct-2013	TSS	0.31	8.3	0.79	12	NULL	**********	0.76	10	1.9	15
10-Nov-2013	TSS	0.35	8.3	0.43	12	NULL	**********	0.91	10	1.17	15
10-Dec-2013	TSS	0.07	8.3	0.16	12	NULL	**********	0.20	10	0.40	15

10-Jan-2014	TSS	0.78	8.3	2.61	12	NULL	**********	1.15	10	4.13	15
10-Feb-2014	TSS	1.51	8.3	2.11	12	NULL	**********	2.39	10	3.33	15
10-Mar-2014	TSS	4.83	8.3	6.05	12	NULL	**********	4.22	10	5.0	15
10-Apr-2014	TSS	1.82	8.3	2.45	12	NULL	**********	2.58	10	3.0	15
10-May-2014	TSS	<2.53	8.3	1.91	12	NULL	**********	<1.67	10	2.0	15
10-Jun-2014	TSS	1.19	8.3	4.35	12	NULL	**********	1.75	10	6.33	15
10-Jul-2014	TSS	0.18	8.3	0.23	12	NULL	**********	0.33	10	0.33	15
10-Aug-2014	TSS	0.24	8.3	0.39	12	NULL	**********	0.6	10	1.0	15
10-Sep-2014	TSS	0.79	8.3	1.11	12	NULL	**********	2.0	10	3.0	15
10-Oct-2014	TSS	0.68	8.3	1.06	12	NULL	**********	1.98	10	2.9	15
10-Nov-2014	TSS	0.74	8.3	0.96	12	NULL	**********	1.92	10	2.0	15
10-Dec-2014	TSS	0.8	8.3	1.0	12	NULL	**********	2	10	2	15
10-Jan-2015	TSS	0.6	8.3	0.8	12	NULL	**********	1	10	2	15
10-Feb-2015	TSS	1.8	8.3	3.9	12	NULL	**********	3	10	5	15
10-Mar-2015	TSS	1.2	8.3	2.2	12	NULL	**********	2	10	4	15
10-Apr-2015	TSS	1.6	8.3	3.2	12	NULL	**********	2	10	4	15
10-May-2015	TSS	0.2	8.3	0.6	12	NULL	**********	0	10	1	15
10-Jun-2015	TSS	<QL	8.3	<QL	12	NULL	**********	<QL	10	<QL	15

ATTACHMENT 8

2010 Ammonia Limitations Derivation

9/10/2010 2:57:38 PM

Facility = Land Or
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 8.4
WLAc = 1.2
Q.L. = 0.2
# samples/mo. = 12
# samples/wk. = 3

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 2.42120411209957
Average Weekly limit = 1.77097449401967
Average Monthly LImit = 1.31914452348425

The data are:

9

ATTACHMENT 9

Total Residual Chlorine Limitations Derivation

7/2/2015 9:29:37 AM

Facility = Lake Land 'Or WWTP
Chemical = Chlorine
Chronic averaging period = 4
WLAa = 0.019
WLAc = 0.011
Q.L. = 0.1
# samples/mo. = 85
# samples/wk. = 21

Summary of Statistics:

observations = 1
Expected Value = .2
Variance = .0144
C.V. = 0.6
97th percentile daily values = .486683
97th percentile 4 day average = .332758
97th percentile 30 day average= .241210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 1.60883226245855E-02
Average Weekly limit = 8.37736286379463E-03
Average Monthly LImit = 7.42073896753786E-03

The data are:

0.2

ATTACHMENT 10

Public Notice

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Caroline County, Virginia.

PUBLIC COMMENT PERIOD: September 4, 2015 to October 5, 2015

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Aqua Virginia, Incorporated
2414 Granite Ridge Road, Rockville, VA 24146
VA0060887

NAME AND ADDRESS OF FACILITY: Lake Land 'Or Wastewater Treatment Plant
200 Kent Drive, Ruther Glen, VA 22546

PROJECT DESCRIPTION: Aqua Virginia, Incorporated has applied for a reissuance of a permit for the private Lake Land 'Or Wastewater Treatment Plant. The applicant proposes to release treated sewage wastewaters from residential areas at a rate of 0.22 million gallons per day into a water body. Sludge from the treatment process will be disposed by landfill. The facility proposes to release the treated sewage in an unnamed tributary of South River in Caroline County in the York River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, carbonaceous-biochemical oxygen demand-5 day, biochemical oxygen demand-5 day, total suspended solids, dissolved oxygen, total Kjeldahl nitrogen, E. coli, total residual chlorine, total nitrogen and total phosphorus.

This facility is subject to the requirements of 9VAC25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by hand-delivery, email, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.

Name: Douglas Frasier
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3873 Email: Douglas.Frasier@deq.virginia.gov Fax: (703) 583-3821